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IS 8166 (1988): Specification for Rotary Drill Bits for Drilling Principally in Coal [MED 8: Mining Techniques and Equipment]

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Bhartṛhari—Nītiśatakam
“Knowledge is such a treasure which cannot be stolen”

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IS : 8166 - 1988

Indian Standard

(Reaffirmed 1999)

SPECIFICATION FOR ROTARY DRILL BITS FOR DRILLING PRINCIPALLY IN COAL

(First Revision)

Mining Face Equipment Sectional Committee, EDC 92; Coal Drills Subcommittee, EDC 50 : 11 [Ref : Doc : EDC 92/50 (4902)]

1. Scope — Covers the requirements for rotary drill bits used for drilling holes. The tools are principally for use in coal but are applicable to other materials having appropriate driving characteristics.

1.1 This standard also covers the pilot and reamer bits for drilling large diameter holes.

2. Types

a) *Type* A — One piece bits, and

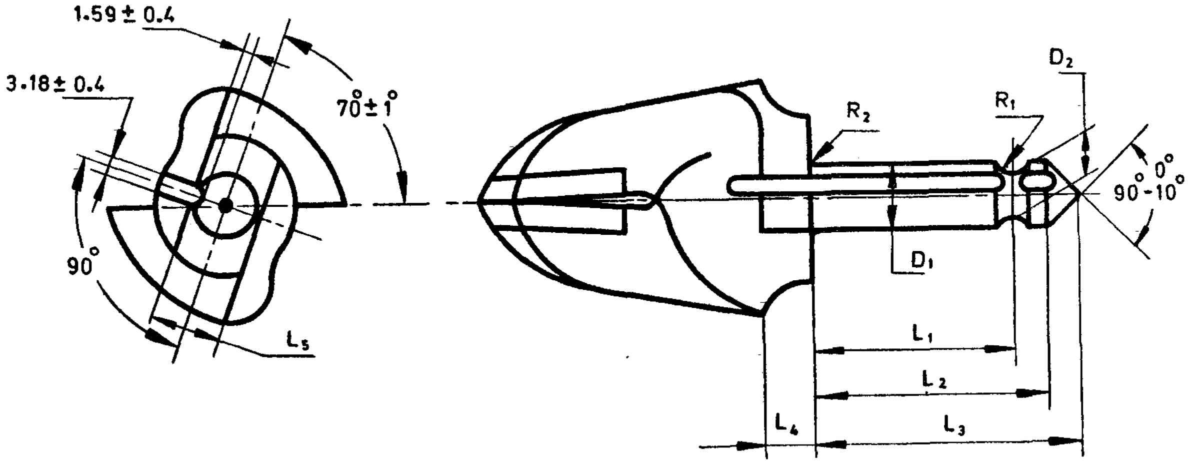
b) *Type* B — Two piece bits consisting of pilot and reamer bits.

3. Nominal Sizes

Type A	Type B	
	Pilot	Reamer
35	35	63
38	43	75
43	—	—
52	—	—

4. Dimensions

4.1 *Shanks*



All dimensions in millimetres.

Type of Bit	D_1 0 −0·10	D_2 0 −0·25	L_1 +0·15 0	L_2 ±0·4	L_3 *Max*	L_4 ±0·3	L_5 0 −0·33	R_1 ±0·13	R_2 *Max*
A	12·7	8·6	23	29·9	39·3	9·7	13·1	3·2	0·3
B	12·7	8·6	40·5	47·4	57·2	9·7	13·1	3·2	0·3

Adopted 18 July 1988

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BUREAU OF INDIAN STANDARDS
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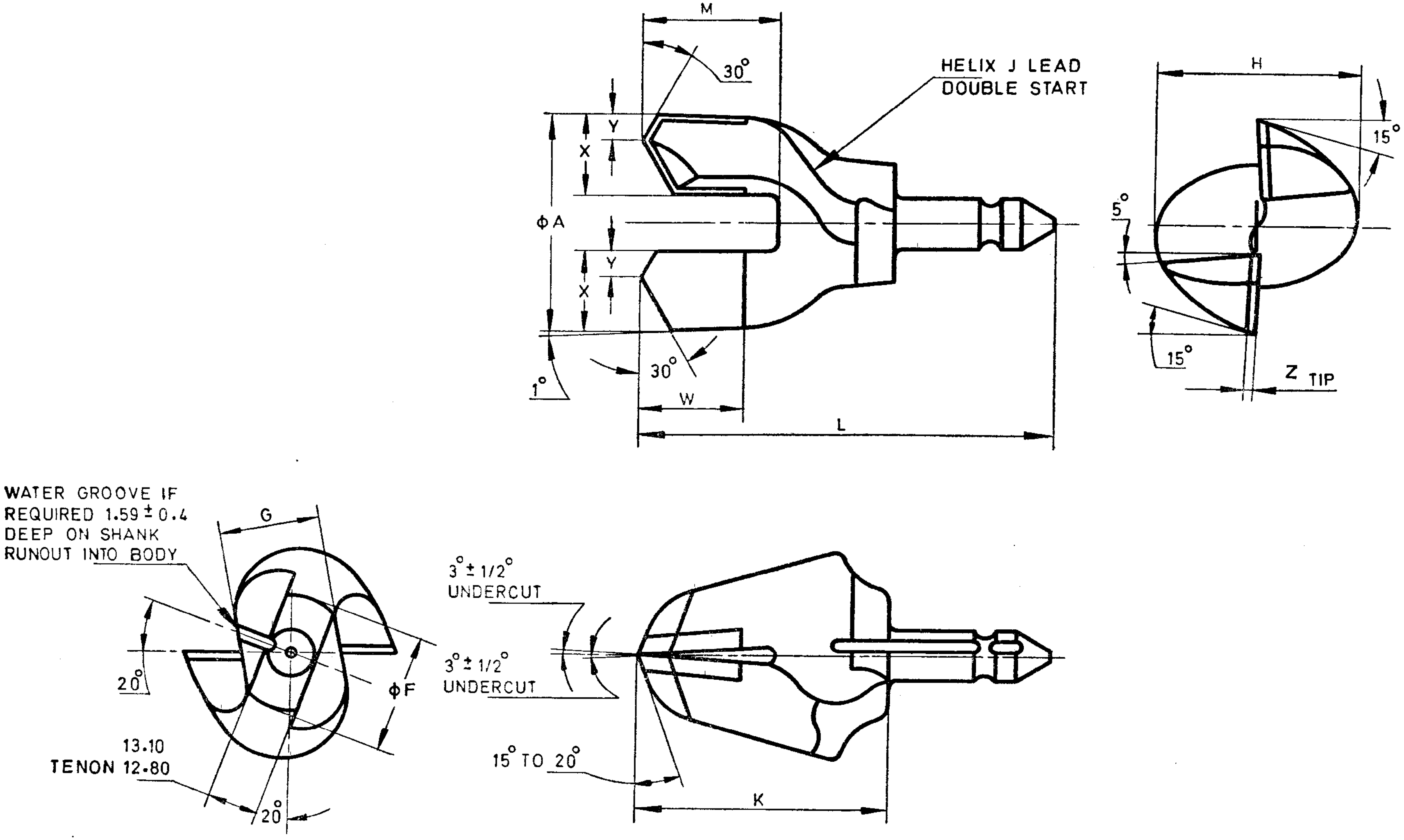
4.2 *Body*

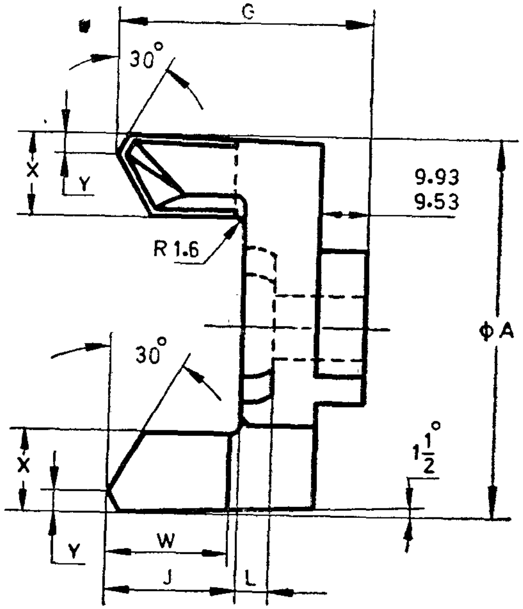
4.2.1 *Type* A *bits and pilot bits for Type* B *bits*

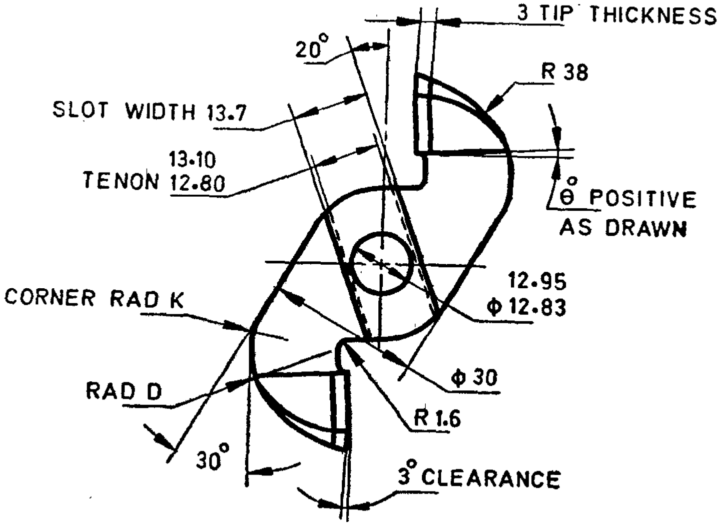


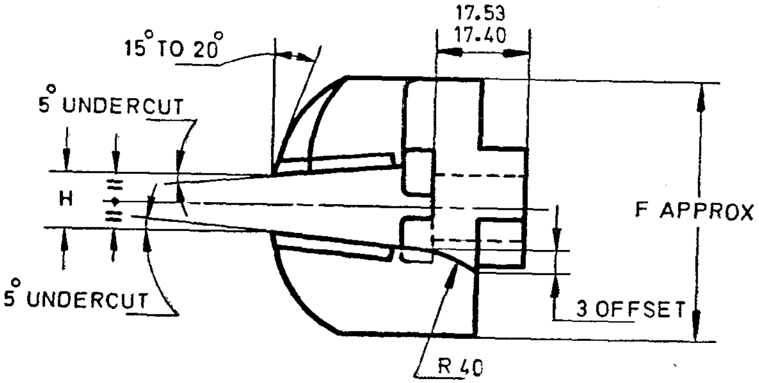
All dimensions in millimetres.

Nominal Size	Cutting Dia *A* +0·76 0	Tip Width *X*	Tip Chamfer *Y*	Tip Height *W*	Tip Thickness *Z* *Min*	Tenon Dia *F*	Core Width *G*	Body Width *H*	Lead *J*	Body Length *K*	Overall Length *L*		Gap Height *M*
											Type A	Type B	
35	35	14	4	19	3	20	22	32	64	52	91·3	109·2	24
38	38	14	4	19	3	21	19	32	76	52	91·3	—	27
43	43	16	4	24	3	22	22	40	76	56	95·3	113·2	30
52	52	19	6	25	4	29	24	49	127	60	99·3	—	32

4.2.2 *Reamer bits for Type* B *bits*







All dimensions in millimetres.

Nominal Size	Cutting Dia A +0·51 0	Tip Width X	Tip Chamfer Y	Heal Radius D	Tip Length W	Bit Width F	Bit Height G	Gap Width H	Gap Height J	Corner Radius K	Slot Depth L	Clearance Angle θ
63	63	14	4	10	19	48	51	9	25	3	9	15° NEG
75	75	16	4	16	24	51	51	11	25	6	6	3° POS

5. Material

a) *Shank and Body* — High tensile steel with 0·55 percent carbon, *Min*.

b) *Tips* — Tungsten carbide conforming to IS : 4005-1967 'Specification for tungsten carbide for mining tools'. Grade used shall be at the option of the purchaser.

6. Designation — A rotary drill bit of Type A, nominal size 38 and having tip of H grade of tungsten carbide shall be designated as:

Rotary Drill Bit A38H

7. Hardness — 210 *HV, Min* for bit bodies.

8. General Requirements

8.1 The bit body shall allow an unrestricted flow of cuttings away from the bit when the latter is fitted into the rod.

8.1.1 The attachment of the bit to the drill rod shall be streamlined to give unobstructed flow of the cuttings.

8.2 The tips shall be firmly brazed to the body of the bits.

8.3 Rotary drill bits shall be supplied with or without water grooves as specified by the purchaser.

8.4 Rotary drill bit shall have rake angle normally of +3°. However, if required by the purchaser, rotary drill bit with 0 to —4° rake angle may be supplied.

9. Identification — Except for the shank, the bits shall be painted with the colour appropriate to the grade of tungsten carbide used in the manufacture of the tip (*see* IS : 4005 - 1967).

10. Marking — Each rotary drill bit shall be marked on the driving flats with the following:

a) Manufacturer's name or trade-mark;

b) Letter H, M, T or XT to identify the grade of tungsten carbide; and

c) Nominal size.

10.1 *Standard Marking* — Details available with the Bureau of Indian Standards.

EXPLANATORY NOTE

This standard was first published in 1976. This revision is based on the experience of the manufacturing industry and the users of this product. The revision incorporates options for water groove and rake angle, and tolerances on tip width, tip height and gap height have been deleted.

While preparing this standard, considerable assistance has been derived from the following:

ISO 1717-1974 Rock drilling — Rotary drill rods and rotary drill bits for dry drilling — Connecting dimensions. International Organization for Standardization.

BS 2593 : 1964 Specification for rotary drill rods and tungsten carbide tipped rotary drill bits for dry drilling, principally in coal. British Standards Institution.

N.C.B. Specification No. 148/1967 Positive rake rotary drill bits, $1\frac{11}{16}$ in dia. National Coal Board, London.

N.C.B. Specification No. 543/1968 Rotary drilling bits and reamer bits other than $1\frac{11}{16}$ in dia. National Coal Board, London.

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